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UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/674,900	09/29/2003	Robert F. Bartfai	TUC920030109US1	4827

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

	Application No.	Applicant(s)
Office Action Summary	10/674,900	BARTFAI ET AL.
	Examiner	Art Unit	
	Dennis Myint	2162	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>09 March 2007</u>.

2a)☒ This action is **FINAL.**   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-29* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>29 September 2003</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date ___.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

U.S. Patent and Trademark Office

PTOL-326 (Rev. 7-05)   Office Action Summary   Part of Paper No./Mail Date 20070417

DETAILED ACTION

1.   This communication is responsive to Applicant's Amendment, filed on March 9,

2007.

2.   Claims 1-29 are pending in this application. Claims 1, 9, 14, and 22 are

independent claims. In the Amendment filed on March 9, 2007, no amendments were

made. No amendments were made. **This office action is made final.**

3.   Applicant's arguments regarding the rejection of claims 1-29 under 35 U.S.C. 101

are persuasive. As such, rejection of said claims under 35 U.S.C. is hereby withdrawn.

Response to Arguments

4.   Applicant's arguments filed on March 9, 2007 regarding the rejection of claims 1-

29 under 35 U.S.C. 103 (a) have been fully considered but they are not persuasive.

Referring to claim 1, Applicant argued that *Although the invention of Milillo is also*

implemented in a PPRC environment, that environment does not include a FlashCopy

or comparable function (Applicant's argument, Page 5 Lines 25-27). In response, it is

pointed out that claim 1 is rejected under 35 U.S.C. 101 in view of the combination of

Milillo, Asselin, and Taylor references. FlashCopy operation is taught by Asselin on

Page 2 as *When you use concurrent copy, application processing is interrupted for only*

a short period while the system initializes the concurrent copy environment. Once

concurrent copy is active, your application can continue to process the data while it is

being backed up using the current copy (Asselin, Page 2 Lines 6-10) and on Page 3 as

it serializes access to the data sets involved, which are unavailable to users during that

time (Asselin, Page 3 Lines 9-10) and as "*The system serializes access to the data*

being dumped or copied just long enough for the concurrent copy session to be

initialized (Asselin, Page 3 Lines 13-15).

Applicant argued on Page 3 that *Asselin is actually directed to a different storage*

function, "concurrent copy", not FlashCopy, and does not disclose or suggest write-

inhibiting all source volumes in a consistency group (Applicant's argument, Page 6

Lines 8-10). In response, it is pointed out that concurrent copy of Asselin functions the

same way as FlashCopy and inhibit write operations to source volumes (Asselin, Page

3 Lines 9-10, i.e., *it serializes access to the data sets involved, which are unavailable to*

users during that time and Page 3 Lines 13-15, i.e., *The system serializes access to the*

data being dumped or copied just long enough for the concurrent copy session to be

initialized).

Additionally, Applicant argued that *In none of the cited references are multiple*

volumes the focus of the attention (Applicant's argument, Page 6 Lines 23). In

response, it is pointed out that Milillo is directed to multiple volumes. Note that Milillo

recites that *It should be noted that Fig. 2 depicts a single PPRC volume pair (primary*

target volume 54 and secondary volume 56) and a single source volume 52 for the sake

of simplicity only. ***As those of ordinary skill will appreciate, additional volume pairs***

and source volumes may also be included*.* Thus, in the method and system of

Milillo, additional volumes can be placed on both primary and secondary systems and

Primary Target Volumes of Milillo et al. (Milillo et al. Figure 2, Primary Target Volume

54) could be PPRC Primary Site Storage Volumes of the claimed invention

(Specification of the claimed invention, Figure 1, PPRC Primary Site Storage Volumes

116).

Claim Rejections - 35 USC § 103

5.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art
> are such that the subject matter as a whole would have been obvious at the time the invention was made to
> a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be
> negatived by the manner in which the invention was made.

6.   This application currently names joint inventors. In considering patentability of

the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g)

prior art under 35 U.S.C. 103(a).

7.   Claim 1-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Milillo et al., (hereinafter "Milillo") (U.S. Patent Number 6643671) in view of Asselin et

al., (hereinafter "Asselin") ("Implementing Concurrent Policy", IBM Document Number

GG24-3990-00, December 1993) and further in view of Taylor (U.S. Patent Application

Publication Number 2004/0220981).

As per claim 1, Milillo is directed to "a method for protecting consistency groups

during a data storage backup operation" (Milillo, Figure 2) and teaches the limitations:

"transferring data updates from a host device" (Milillo, Figure 2: *Host 42*) "to

primary PPRC volumes on a primary PPRC unit" (Milillo, Figure 2: *Source Volume 52*)

(Also note Milillo, Column 7 Line 1-25);

"upon the primary PPRC volumes forming a consistency group, transferring the

primary PPRC volumes to FlashCopy source volumes on a secondary PPRC unit"

(Milillo et al. Figure 2, "Primary Target Volume" 54);

and "committing a FlashCopy operation of the consistency group from the

FlashCopy source volumes to corresponding FlashCopy target volumes" (Milillo, Figure

2: *Secondary Volume 56* and Milillo, Column 7 Line 44-63).

Note that Milillo recites that *It should be noted that Fig. 2 depicts a single PPRC*

volume pair (primary target volume 54 and secondary volume 56) and a single source

volume 52 for the sake of simplicity only. As those of ordinary skill will appreciate,

additional volume pairs and source volumes may also be included. Thus, in the method

and system of Milillo, additional volumes can be placed on both primary and secondary

systems and Primary Target Volumes of Milillo et al. (Milillo et al. Figure 2, Primary

Target Volume 54) could be PPRC Primary Site Storage Volumes of the claimed

invention (Specification of the claimed invention, Figure 1, PPRC Primary Site Storage

Volumes 116).

Milillo does not explicitly teach the limitations: "attempting to prepare each

FlashCopy source volume for a FlashCopy operation, including imposing a write-inhibit

indicator on a FlashCopy source volume", "if the preparation of all FlashCopy source

volumes is successful" and "reverting the FlashCopy operation if the preparation of any

FlashCopy source volume is unsuccessful, whereby the prior consistency group is

maintained in the FlashCopy target volumes".

On the other hand, Asselin teaches the limitation:

"attempting to prepare each FlashCopy source volume for a FlashCopy

operation, including imposing a write-inhibit indicator on a FlashCopy source volume"

(Asselin, Page 2-3). Asselin teaches a method of concurrent copy where in source is

not available for access for a short period of time while concurrent copy process

initialized (Asselin et al. Page 2, i.e., when *you use concurrent copy, application*

processing is interrupted only for a short period while the system initializes the

concurrent copy environment and Page 3, i.e., *The system serializes access to the data*

being dumped or copied long enough for the concurrent copy session to be initialized).

It is inherent in the method of concurrent copy as taught by Asselin that write-inhibit

indicators are imposed during the initialization period of the concurrent copy process.

In addition, Taylor teaches the limitation:

""if the preparation of all FlashCopy source volumes is successful" (Taylor,

Paragraph 0040, i.e., *if the online backup preparation was successful*") and

"reverting the FlashCopy operation if the preparation of any FlashCopy source

volume is unsuccessful, whereby the prior consistency group is maintained in the

FlashCopy target volumes" (Taylor, Paragraph 0040, i.e., *However if the online backup preparation was not successful, then the system attempts to return to database accessibility by releasing the database from online backup operation*).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the method of Milillo et al. for data copying using consistency groups with the methods of Asselin and Taylor so that, in the combined method, write operations on source consistency group volumes would be made unavailable by way of using write-inhibitors (i.e. preparing the consistency groups for FlashCopy) and mirroring/copying/updates between the consistency group volumes (FlashCopy operations) would be committed if preparations of consistency groups are successful and reverted if said preparation is not successful. One would have been motivated to do so in order to "reduce the amount of time that is required to back up application data, hence increasing the time available for online service" (Asselin et al., Page 2 Second Paragraph) and to "*provide a safe and effective backup* " (Taylor, Paragraph 0015).

Referring to claim 2, the method and system of Milillo in view of Asselin and further in view of Taylor as discussed above with regard to claim 1 discloses the invention as claimed. Particularly, Asselin in view of Taylor teaches the limitation:

"wherein a write-inhibit indicator is operable to prevent the reception of data updates by the FlashCopy source drive transmitted from the PPRC source device during a FlashCopy operation" (Asselin, Page 2-3 teaches write-inhibitors and Taylor,

Paragraph 0040, i.e., *However if the online backup preparation was not successful, then the system attempts to return to database accessibility by releasing the database from online backup operation*).

Referring to claim 3, the method and system of Milillo in view of Asselin and further in view of Taylor as discussed above with regard to claim 1 discloses the invention as claimed. It is inherent in the method and system of Milillo in view of Asselin and further in view of Taylor that write-inhibitors would be released if the preparation of all FlashCopy source volumes is successful and, as such, teaches the limitation:

"further comprising releasing the write-inhibit indicators if the preparation of all FlashCopy source volumes is successful" (Asselin, Page 3, i.e. "After logical completion, the data is once again available for unrestricted application access; and Taylor, Paragraph 0040, i.e., *if the online backup preparation was successful*).

Referring to claim 4, Milillo in view of Asselin and further in view of Taylor teaches the limitation:

"wherein the step of preparing each FlashCopy source volume for a FlashCopy operation comprises generating an Establish-FlashCopy-Revertable command" (Taylor, Figure 10: *222 Release Database from Online Preparation* and Paragraph 0042, i.e., *the Release stage*).

Referring to claim 5, Milillo in view of Asselin and further in view of Taylor

teaches the limitation:

"wherein the step of committing the FlashCopy operation comprises generating a

Withdraw-FlashCopy-commit command" (Taylor, Paragraph 0040, i.e., *if the online*

backup preparation was successful and Paragraph 0040, i.e., *However if the online*

backup preparation was not successful, then the system attempts to return to database

accessibility by releasing the database from online backup operation).

Referring to claim 6, Milillo in view of Asselin and further in view of Taylor

teaches the limitation:

"wherein the step of reverting the FlashCopy operation comprises generating a

Withdraw-FlashCopy-revert command" (Taylor, Paragraph 0040, i.e., *if the online*

backup preparation was successful and Paragraph 0040, i.e., *However if the online*

backup preparation was not successful, then the system attempts to return to database

accessibility by releasing the database from online backup operation).

As per claim 7, Milillo in view of Asselin and further in view of Taylor teaches the

limitation:

"the method further comprises deciding after an attempt to prepare each

FlashCopy source volume whether the preparation is successful; and the reverting step

comprises reverting the FlashCopy operation following any unsuccessful preparation"

(Taylor, Paragraph 0040, i.e., *if the online backup preparation was successful* and

Paragraph 0040, i.e., *However if the online backup preparation was not successful, then the system attempts to return to database accessibility by releasing the database from online backup operation*).

Claim 8 is rejected on the same basis as claim 7.

Claim 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, and 29 are rejected on the same basis as claim 1, 2, 3, 7, 8, 1, 2, 3, 4, 5, 6, 7, 8, 1, 2, 3, 4, 5, 6, 7, and 8.

Conclusion

8.   Applicant's amendments have been considered but are not persuasive.

Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is

reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the date of this final action.

Contact Information

9.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis Myint whose telephone number is (571) 272-5629. The examiner can normally be reached on 8:30AM-5:30PM Monday-Friday.

     If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Breene can be reached on (571) 272-4107. The fax phone number for the organization where this application or proceeding is assigned is 571-273-5629.

     Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dennis Myint
Examiner
AU-2162

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